



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
[www.uspto.gov](http://www.uspto.gov)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/481,043	01/11/2000	RANDALL L. SIMPSON	IL-10127B	5097
78980	7590	06/03/2008		
I.L.NL/Zilka-Kotab John H. Lee, Assistant Laboratory Counsel Lawrence Livermore National Laboratory L-703, P.O. Box 808 Livermore, CA 94551			EXAMINER FELTON, AILEEN BAKER	
			ART UNIT	PAPER NUMBER
			1793	
			MAIL DATE	DELIVERY MODE
			06/03/2008	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

# Office Action Summary

## Application No.

09/481,043

## Applicant(s)

SIMPSON ET AL

## Examiner

Aileen B. Felton

## Art Unit

1793

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 21 April 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1, 26-38, 40, 41 and 45 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1, 26-38, 40, 41 and 45 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/C)
- Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)
- Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 26-38, 40, 41, and 45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sayles (4952341) or Benziger (4481371) in view of the article to Hench et al entitled "The Sol Gel Process", the article from Science and Technology Review, and the admitted prior art in Applicant's specification (page 13, lines 5-23).

Sayles discloses that "[b]urning rates of propellants are also influenced by surface area and particle sizes of the oxidizer ingredients. Porosity is another factor which increases burning rate of solid propellant grains" (col. 1, lines 50-57). Sayles also uses ammonium perchlorate (table 1). Alternatively, Benziger discloses that "it has been generally known that the sensitivity of solid explosives can be increased by decreasing the particle size of the material and correspondingly increasing the surface area per unit weight of the material (col. 1, lines 40-45).

The article to Hench et al discloses various sol-gel methods and indicates that sol-gel processing is useful for making materials with high surface area that are porous. (see particularly pages 33, 35-37, 42, 57, 65, and 68).

The article from Science and Technology Review (pg 23) teaches the use of a sol-gel process that is less expensive.

Applicant's specification admits that the sol-gel process is "known in the art for producing a variety of metal oxide, organic, and carbon aerogels and xerogels, and these materials have been utilized for various purposes. The composition of the aerogels or xerogels is varied by the sol-gel processing, whereby various surface areas, densities, etc. can be produced" (page 13, lines 5-23).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to use the sol-gel processes as taught by the Science and Technology article, article to Hench et al, and the admitted prior art in Applicant's specification with the explosives disclosed by Benziger and Sayles since Benziger and Sayles both disclose that it is known in the explosive and propellant art to use high surface areas and porosity to improve burn rate and since the articles and admitted prior art teach that the sol-gel processes are known ways to make materials with high surface area and porosity.

***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1, 32, and 45 are rejected under 35 U.S.C. 102(b) as being anticipated by the article from Science and Technology Review.

The article from Science and Technology Review (pg 23). teaches the claimed sol-gel process that is less expensive and uses materials such as carbon as the fuel and the oxidizer is provided by the air in the aerogel. Carbon and air can also function as propellants.

### ***Response to Arguments***

5. Applicant's arguments have been considered but are moot in view of the new ground(s) of rejection.

Regarding claims 1, 32, and 45, the article from Science and Technology Review clearly shows the use of carbon with sol-gel process and the oxidizer is provided by the air in the aerogel. These materials can also function as propellants.

In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, it is obvious to use the sol-gel processes as taught by the Science and Technology article, article to Hench et al, and the admitted prior art in Applicant's specification with the explosives disclosed by Benziger and Sayles since Benziger and Sayles both disclose that it is known in the explosive and propellant art to use high surface areas and porosity to

improve burn rate and since the articles and admitted prior art teach that the sol-gel processes are known ways to make materials with high surface area and porosity.

Applicant argues that the specification cannot be used to combine but this is not persuasive since the specification admits that it is known in the art and thus constitutes prior art.

### ***Conclusion***

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Aileen B. Felton whose telephone number is 571.272.6875. The examiner can normally be reached on Monday-Friday 6:30-4:00, except alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jerry Lorengo can be reached on 571.272.1233. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Aileen Felton/  
Primary Examiner  
Art Unit 1793